09/998,432
Art Unit 2813
Docket no. 13-DV-14003

REMARKS

This Amendment is submitted in response to the Office Action mailed on May 17, 2005. Claims 1 - 4 are pending, and all stand rejected at present. Claims 5 - 18 are withdrawn. Claims 19 - 33 are added. No fee is due.

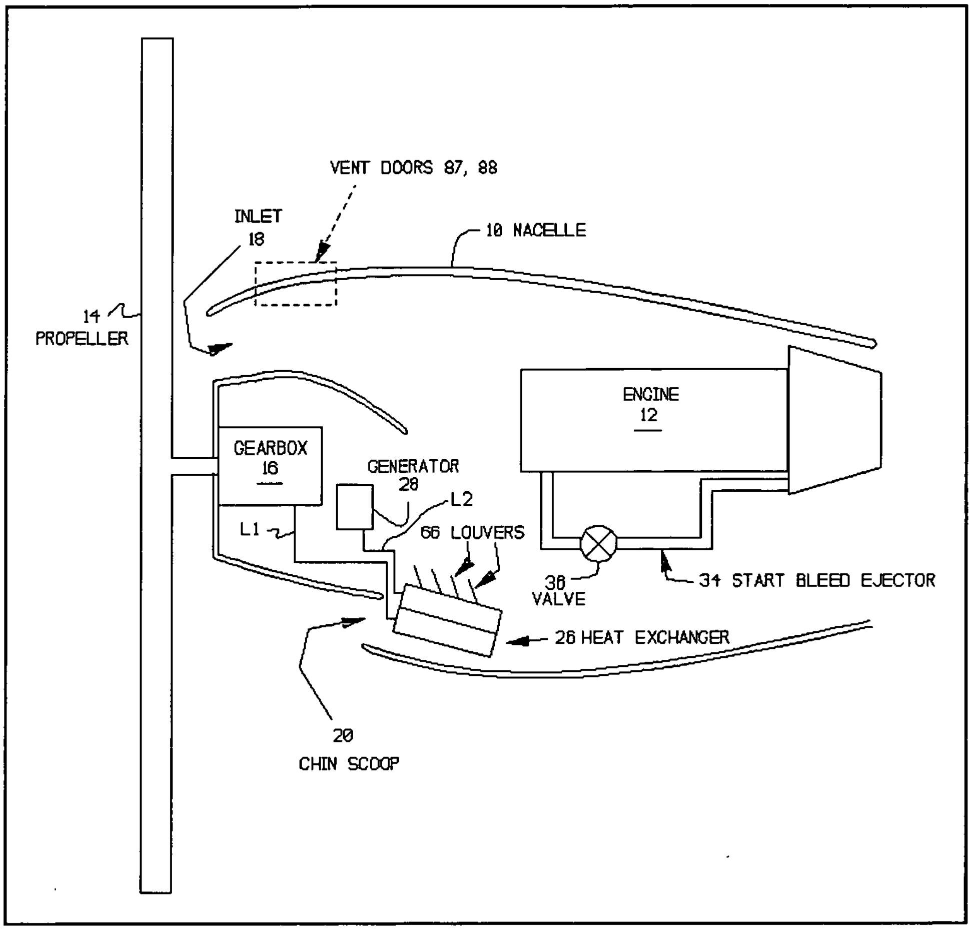
Response to Rejection of Claims 1 - 4

Claims 1 - 4 were rejected on grounds of anticipation, based on Laborie.

Laborie Reference

Sketch 1, below, illustrates relevant features of Laborie.

A

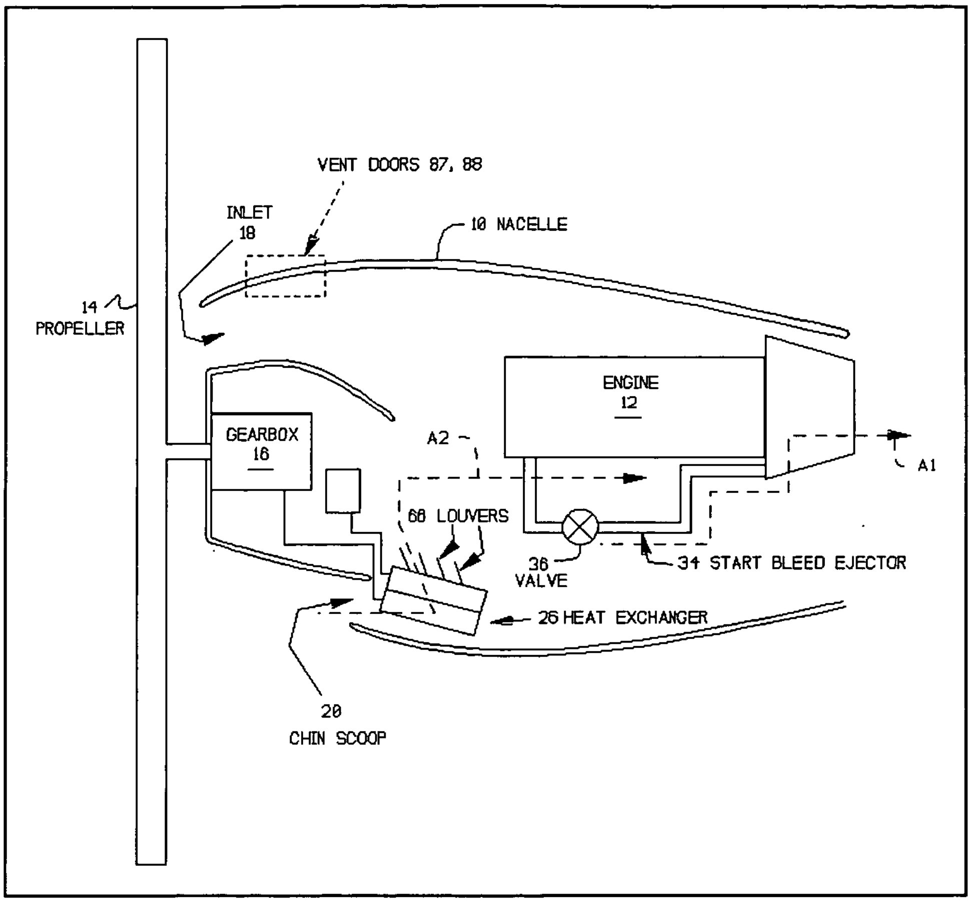


Sketch 1

Gas turbine engine 12 is contained within a nacelle 10. The engine drives a propeller 14 through a gearbox 16. The gearbox 16 contains oil, which is circulated through part of a heat exchanger 26, through lines L1. A generator 28 is also present, which also contains oil, which is circulated through another part of the heat exchanger 26. Incoming air received through the chin scoop 20 cools the heat exchanger 26.

Louvers 66 on the heat exchanger 26 control flow of this incoming air. A control system (not shown) opens the louvers when more cooling is required, thereby admitting more air through the heat exchanger. The control system closes the louvers when less cooling is required, thereby admitting less air.

However, it appears that during start-up of the engine 12, as when the aircraft is parked on the ground, little, if any, incoming air enters the chin scoop 20, so that little, if any, cooling air enters the heat exchanger 26. Thus, it appears, a start bleed ejector is used at that time, as shown in Sketch 2, below.



Sketch 2

This ejector is fed by a compressor of the engine 12. Apparently, the engine 12 utilizes a two-compressor system, namely, an axial-flow compressor which feeds a centrifugal compressor. Duct 34 taps the axial-flow compressor. During start-up, valve 36 is opened, thereby generating the flow indicated by arrow A1, which is fed to the engine exhaust. (Column 3, lines 60 - 65.)

This flow A1 induces the flow indicated by arrow A2, which

flows across the heat exchanger 26. (Column 7, lines 1 - 8.) This appears to be the ejector action: flow A2 is induced by flow A1.

In addition, the following events and apparatus are present in Laborie.

1. A pair of vent doors 87 and 88 in Laborie's Figure 7 are present. These are apparently positioned as shown in Sketches 1 and 2, above. (Column 5, lines 30 - 35.)

    -- These doors are closed during start-up. (Column 7, lines 2 - 4.)

    -- If the temperature of oil in the gearbox 16 exceeds a limit, these doors are opened. Otherwise, they remain closed. (Column 7, lines 30 - 40.)

    -- If the pressure within the nacelle becomes too great, these doors are opened. (Column 7, lines 41 - 44.)

2. During take-off and cruise, the start bleed valve 38 is closed, and the start bleed is not used. (Column 7, lines 19, 20.)

3. During operation, as stated above, the louvers 66 are modulated, to control flow of air through the heat exchanger 26. (Column 7, lines 14 - 18.)

Application of Laborie to Claims

Claim 1

Claim 1 recites:

> 1. A method of operating a gas turbine engine **having a lubrication sump which vents air through a vent which produces an exit pressure at the exit of the vent**, comprising:
>
> a) running the engine at idle; and
>
> b) reducing said exit pressure.

POINT 1

Applicants point to the **highlighted** language of claim 1. That language recites

-- a "lubrication sump,"

-- which "sump" has a "vent,"

-- and an "exit pressure at the exit of the vent."

Applicants further point out that claim 1(b) recites "reducing **said** exit pressure." That is the "exit pressure at the exit of the vent."

None of these elements have been identified in Laborie. Consequently, Applicants request, under 37 CFR §§ 1.104(c)(2) and 35 U.S.C. § 132, that the PTO specifically identify these elements in Laborie:

-- the claimed "sump,"

-- the claimed "vent,"

-- the claimed "exit pressure," and

-- the claimed reduction in exit pressure.

POINT 2

Applicant points out that three lubrication systems, and possibly more, are present in Laborie.

-- One is the lubrication system for the gearbox 16.

-- One is for the generator 28.

-- And one is for the engine 12 itself.

Laborie explicitly states that the lubrication systems for the gearbox 16 and the generator 28 are not shown. (Column 4, lines 31 - 34.) Consequently, since the lubrication systems are not shown, it is not surprising that no "sumps" for those systems are shown, nor any "vent" or "exit pressure."

Thus, the only remaining place where the missing elements could be found are in the lubrication system of the engine 12. But that is not shown either.

MPEP § 2131 states:

> A claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in

a single prior art reference.

POINT 3

The Office Action, page 2, section 2, relies on element 146 in Laborie's Figure 3 to show claim 1(b). However, element 146 is a pressure-sensitive switch. (Column 6, lines 37 - 41.) It senses pressure downstream of valve 38 in Sketch 2, above.

When valve 38 is opened, switch 146 closes, thereby closing the doors 87 and 88 shown in Laborie's Figure 7. That does not show claim 1(b), which recites "reducing **said** exit pressure." "**Said** exit pressure" is at the "exit" of a "vent" of a "lubrication sump." No such "exit" has been shown in Laborie.

Further still, it is not clear whether opening the doors 87 and 88 serves to increase pressure within the nacelle, or decrease the pressure. For example, Laborie's Figure 7 indicates that the doors are gull-wing type. Thus, they can be viewed as intermediate between doors opening (or facing) forward, and doors facing rearward.

If the doors opened forward, and acted like scoops, they could **increase** pressure when opened. Conversely, if they opened backward (like modern car doors), they could **decrease** pressure when opened. Since Laborie's doors are intermediate (they open sideways), it is not clear how they affect pressure within the nacelle.

Stated more simply, do the doors 87 and 88 draw air into the

nacelle, or let air escape ? Air flows from high to low pressure.

Laborie states that if pressure within the nacelle is too high, the doors are opened. Thus, in this case, they may reduce pressure, by letting air out.

But he also states that the doors are opened when oil temperature is too high. Does air move in or out at this time ?

Thus, it is not clear whether Laborie's doors increase, or reduce, pressure in the nacelle.

Further, the pressure switch of Laborie is used to show claim 1(b), which is here repeated:

b) reducing said exit pressure.

"Said pressure" is at the "exit of the vent." No such "vent" has been shown in Laborie.

Nor has it been shown how Laborie's pressure switch senses pressure at any "exit of the vent." That is, just because pressure may be lowered at one location in Laborie, that does not mean that pressure is also lowered at any "exit."

And, as just shown, it is not clear whether Laborie's pressure switch **increases** or **decreases** pressure within the nacelle.

POINT 4

Laborie's pressure switch 146 senses pressure in a duct, which is fed by a compressor bleed. There is no pressure in such a duct

which is related to any pressure in an oil sump, let alone a pressure in a vent to the sump.

Any oil sump is a cavity which is completely isolated from a compressor, and compressor bleed. This is illustrated by the fact that compressor bleeds can easily exceed 100 psi. (See The Jet Engine, Figure 2-5-1, ISBN 0-902121-2-35 (Rolls Royce plc., 5th ed, 1996.) If the sump were pressurized to that level, then only oil at a higher pressure could enter the sump.

But sumps are gravity-fed. Added claim 33 states this.

Claim 2

Claim 2 states that an "eductor" is "connected to the vent." That has not been shown in Laborie.

Claim 3

The Office Action cites Laborie, column 3, line 58 - column 4, line 7, to show claim 3. However, that passage merely states that

> 1) the "start-bleed air exhaust assembly" 34 is fed by a bleed from the axial compressor;
> 2) the purpose of the bleed is to match output of the axial compressor to a centrifugal compressor (the bleed reduces the output); and
> 3) the exhaust of the eductor is added to the

engine exhaust.

That does not show claim 3, which states:

> 3. Method according to claim 1, and further comprising
>
> c) terminating the reducing of paragraph (b) when flow through the vent exceeds a floor.

The applied passage of Laborie fails to show

-- the claimed "floor,"

-- the claimed "terminating" when the flow exceeds the floor.

Further, in the claim, action is taken when "flow" exceeds a floor. Thus, flow measurement occurs. No measurement of the claimed flow is shown in the Laborie passage.

Claim 4

Claim 4 recites:

> 4. Method according to claim 1, and further comprising:
>
> c) raising speed of the engine; and
>
> d) terminating the reducing of paragraph (b).

Point 1

The Office Action relies on the doors 87 and 88 in Laborie's

Figure 7 to show claim 4(b). However, those doors remain closed, unless (1) oil temperature is too high or (2) pressure in the nacelle is too high.

Thus, Laborie does not state that the doors are opened when the engine speed is raised.

Point 2

The rejection of claim 4 is contrary to that of claim 1. The doors 87 and 88 are used to show the reducing of pressure in claim 1(b). The same doors are used to show the **termination** of the reducing in claim 4(d).

Applicant submits that the PTO must explain how the doors both show claim 1(b) and, the opposite, claim 4(d).

Point 3

Point 2 can be viewed from another perspective. In one situation, Laborie uses the doors to reduce pressure in the nacelle. That is, if internal pressure is too high, he opens the doors.

That is contrary to claim 4, which claims a **termination** of a reduction.

Added Claims

The added claims are considered patentable, based on their

parent claims.

Claims 31 and 32 are considered to state that which is self-evident, namely, that claim 1(b) occurs with claim 1(a), and claim 4(d) occurs with claim 4(c).

If another interpretation is made, such as that claim 1(a) occurs at one time, and claim 1(b) occurs at another time, then the claims are being treated as aggregations.

Claim 20 recites an "eductor having a mixing throat which provides an exit path to air exiting the sump vent." That has not been shown in Laborie.

Claim 21 recites a flow restrictor in the throat. That has not been shown in Laborie. Claim 21 also recites de-actuating the eductor at cruise. That has not been shown in Laborie.

Claim 22 states that the restrictor is in the throat. That has not been shown in Laborie.

Claim 23 recites terminating the reducing during cruise. That has not been shown in Laborie.

Claim 24 recites using the flow restrictor in a certain way. That has not been shown in Laborie.

Claim 25 recites maintaining the flow above a minimum, while reducing the pressure. That **dual** operation has not been shown in Laborie.

Claim 26 recites that the reducing occurs at idle speeds. Claim 27 recites that the reducing is terminated at cruise speeds.

That is not shown in Laborie.

Claim 28 recites restricting flow at cruise. That has not been shown in Laborie.

Claims 29 and 30 recite a flow restrictor in a mixing throat. That has not been shown in Laborie.

Claim 33 states that the sump is gravity-fed. That is not shown in Laborie.

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CONCLUSION

Applicant requests that the rejections to the claims be reconsidered and withdrawn.

Applicant expresses thanks to the Examiner for the careful consideration given to this case.

Respectfully submitted,

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